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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,782	09/17/2003	Masato Yokoyama	242931US2	2961
22850	7590	07/12/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/663,782

Applicant(s)

YOKOYAMA, MASATO

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-15 and 20-23 is/are rejected.
- 7) ☒ Claim(s) 10 and 16-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/11/04, 8/27/04, 10/14/04 & 03/14/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
3. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### Claim 1:

- The following limitation "a first adjustment unit provided to rotate said at least one reflection mirror around the second axis in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction" (emphasis added) at line 15 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2. The rejection of the claim as follows will be based on the specification at the indicated sections until the Applicant says otherwise.

Claim 2:

- The following limitation “a first adjustment unit provided to rotate said at least one reflection mirror ... in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 14 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

Claim 13:

- The following limitation “rotating said at least one reflection mirror around the second axis in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 15 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

Claim 14:

- The following limitation “rotating said at least one reflection mirror around the first supporting unit ... in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 15 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated

in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

- Claim 18:
- It is not understood whether the recited limitation “a CCD camera” is part of the “three photodetectors” as claimed in the parent claim 16 or it is a separate entity whose function, in that particular case, is unknown.

Claim 20:

- The following limitation “a first adjustment unit provided to rotate said at least one reflection mirror around the second axis in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 20 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

Claim 21:

- The following limitation “first adjustment means for rotating said at least one reflection mirror around the second axis in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 15 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

Claim 22:

- The following limitation “first adjustment means for rotating said at least one reflection mirror about the first supporting unit ... in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 14 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

Claim 23:

- The following limitation “first adjustment means for rotating said at least one reflection mirror around the second axis in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction” (emphasis added) at line 20 appears to be misleading in that the scanning speed of the light beam is a measured value made only in the *main scanning direction*, as correctly indicated in the Specification at page 26, lines 16-19, page 27, lines 12-17 and page 28, line 29 to page 29, line 2.

Claims 3-12 and 15-19 are dependent from claims 1, 2 and 13 above, and are therefore indefinite.

Appropriate correction is required.

***Specification***

4. The disclosure is objected to because of the following informalities:

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- The Applicant is advised to carefully review the Specification to correct any discrepancy regarding the "scanning speed in the main scanning direction" instead of "in the sub-scanning direction" as discussed in paragraph 3 above.

Appropriate correction is required.

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 5, 6, 7, 20, 21, 23 are rejected under the judicially created doctrine of double patenting over claims 1, 4, 9, 10, 11, 19 and 20 of U. S. Patent No. **6,864,906** since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

The above-mentioned U.S. Patent No. 6,864,906 recites all the limitations included in claims 1, 5, 6, 7, 20, 21, and 23 of the current Application with a slight variation in wording, namely:

Current Application	U. S. Patent No. 6,864,906
at least one reflection mirror having a reflection surface, a first axis parallel to a main-scanning correspondence direction on the reflection surface, and a second axis along the reflection surface and perpendicular to the first axis;	at least one reflection mirror;
an optical element adjusting a position of a scanning line in a sub-scanning correspondence direction, the optical element having a beam-incidence surface, a third axis parallel to the main-scanning correspondence direction on the beam-incidence surface, and a fourth axis perpendicular to the third axis and along a beam-incidence direction;	an optical element having a function of adjusting a scanning line with respect to a sub-scanning corresponding direction;



a first adjustment unit provided to rotate said at least one reflection mirror around the second axis in order to attain uniformity of a scanning speed of the optical scanner in the sub-scanning correspondence direction;	a scanning speed uniformity adjusting mechanism that moves the reflection mirror around a first axis that is orthogonal to a main scanning corresponding direction and parallel to a reflection surface of the reflection mirror;
and a second adjustment unit provided to rotate said optical element around the fourth axis in order to correct an inclination of the scanning line in the sub-scanning correspondence direction to a desired position of the scanning line.	and a scanning line inclination adjusting mechanism that moves the optical element around a second axis that is orthogonal to the main scanning corresponding direction and orthogonal to the sub-scanning corresponding direction.

The respective axes of rotation of the reflection mirror and the optical element with respect to the optical axis of the light beam are the same in both cases albeit being presented in different wording.

Moreover, although the U.S. Patent No. 6,864,906 does not explicitly recite the light source emitting a light beam, such light source is inherently included in the "light scanning device" as claimed.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application, which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 6-7, 13-14 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (JP 11-153765) in view of Nakamura et al. (U.S. 5,212,501).

Ito et al. discloses an optical scanner used in an image forming apparatus, which comprises a light source (1) a reflection mirror (5) and an optical element (optical correcting system 4) for adjusting a position of a scanning line in a sub-scanning direction (the optical correcting system 4 correcting an inclination of the scan line on the surface of the photoconductor drum with respect to the main scanning direction), a first adjustment unit (actuator 16, Fig. 7) provided to rotate the reflection mirror (5) around the second axis defined along the reflection surface and perpendicular to the main

scanning direction (e.g., angle  $\beta$ ) (Figs. 2-3) in order to correct the curvature of field in the main scanning direction (Fig. 4), and a second adjustment unit (adjusting screw 24, Fig. 12) provided to rotate said optical element (4) around the fourth axis defined along the beam incidence direction and perpendicular to the main scanning direction (e.g., angle  $\gamma$ ) (Figs. 11-12) in order to correct an inclination of the scanning line in the sub-scanning direction.

However, Ito et al. does not explicitly teaches the first adjustment unit to rotate the reflection mirror being used to obtain uniformity of the scanning speed of the optical scanner in the main scanning direction.

Nakamura et al. teaches the adjustment of the curvature of field in the main scanning direction so as to obtain a constant main scanning speed at every portion of the scan line (col. 9, lines 1-14).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art that by rotating the reflection mirror in Ito et al. would result in eliminating the distortion or non-uniformity of the main scanning speed of the optical scanner in view of the teaching of Nakamura et al.

Ito et al. further teaches:

- the first supporting unit (attachment section 13 and attachment screw 18, Fig. 7) is provided at a first end of said at least one reflection mirror in the main-scanning correspondence direction outside a scanning range of said at least one reflection mirror, and the first adjustment unit (attachment section 12 and adjusting screw 16) is provided at a second end of said at least one reflection

mirror (5) in the main-scanning correspondence direction outside the scanning range of said at least one reflection mirror,

- the second supporting unit (attachment section 19) (Fig. 10) is provided at a first end of the optical element (4) in the main-scanning correspondence direction, and the second adjustment unit (attachment section 20 and adjusting screw 24) is provided at a second end of the optical element in the main-scanning correspondence direction,
- the first adjustment unit comprises a feed screw (adjusting screw 16) provided to move said at least one reflection mirror against an elastic actuation force of an elastic member (flat spring 14) that compresses said at least one reflection mirror toward the first adjustment unit (Fig. 7),
- the second adjustment unit comprises a feed screw (adjusting screw 24) provided to move the optical element against an elastic actuation force of an elastic member (flat spring 26) that compresses the optical element toward the second adjustment unit (Figs. 10 and 12).

9. Claims 5, 8-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Nakamura et al., as applied to claims 1 and 13 above, and further in view of Date (JP 10-221618).

Ito et al., as modified by Nakamura et al, discloses all the basic limitations of the claimed invention except for the feed screw being rotated by an eclectically driven actuator, and the detection unit.

Date discloses an optical scanner comprising a deviation detection unit having three line sensors (CCDs 114a-114c) (Fig. 2) for detecting the deviation of the scanning line on the photoconductor drum (113) so as to adjust the reflecting mirror (111) by actuating the respective motor-driven screws.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the motor-driven screws and the deviation detecting units in the device of Ito et al. as taught by Date. The motivation for doing so would have been to provide a high precision deviation correcting mechanism.

10. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Nakamura et al., as applied to claim 1 above, and further in view of Murayama et al. (U.S. 4,847,642).

Ito et al., as modified by Nakamura et al., discloses all the basic limitations of the claimed invention except for the plurality of image supports each having the first and second adjustment units.

Murayama et al. discloses a 4-drum color printer, each comprises a scanning-line deviation adjustment unit constituted by a reflecting mirror whose position is adjusted by an electrically driven actuator, wherein the yellow color image forming station is used as a reference station.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a color image forming stations in the

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device of Ito et al. since Murayama et al. teaches this to be known in the art to provide a separate and independently controlled color stations so as to perform a color image.

***Allowable Subject Matter***

11. Claims 10 and 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 10 and 16-19 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claims 10 and 16 is the inclusion therein, in combination as currently claimed, of the limitations “wherein said at least one reflection mirror is a half mirror” and “the detection unit detects the error of the scanning speed based on a difference of detection times of the light beam detected by at least three photodetectors, said at least three photodetectors being arranged on a back surface of the half mirror apart from one another at a given interval”, which are not found taught by the prior art of record considered alone or in combination.

Claims 17-19 are allowable because they are dependent from claim 16 above.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**HAI PHAM**  
**PRIMARY EXAMINER**  
July 8, 2005